PORTLOCK™ Boot CD

USER'S GUIDE

for NetWare/Windows version
and Linux Version

Portlock Boot CD

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Introduction

The Portlock Boot CD is a powerful tool that enables Portlock Storage Manager to function on a corrupted or bare-metal machine. A bare-metal machine is any server, physical or virtual, that does not contain an operating system. However, if a server's hard drive does contain an operating system (O.S.), users may still boot that server without risk of altering their current O.S. This is possible since the Portlock Boot CD is either running directly from the CD or ISO image, or in RAM. Portlock provides two bootable CDs; one for NetWare and Windows systems, and one for Linux systems. Section A of this user guide will contain instructions pertaining to the Portlock Boot CD for NetWare/Windows. Section B is specific to the Boot CD for Linux. The following sections will cover known limitations for each version, as well as creating a new Portlock Boot CD, a list of included tools, and basic Portlock Boot CD uses.

A. Portlock Boot CD (NetWare/Windows)

Terms of Use

After purchasing your copy of the Portlock Boot CD (PBCD), you will receive a link to download an ISO image. The CD will also be physically mailed to you. Customers may use the PBCD to boot multiple servers; however, the number of copies in concurrent use may not exceed the number of PBCDs purchased. For example, if a customer purchases one PBCD and has five servers, the customer may use his single copy on each server at a different time. The customer may NOT create five copies of their PBCD and simultaneously boot all five servers. In this case, the customer needs to purchase four more PBCDs. Customers may keep a copy of the PBCD in case the CD is damaged or lost. Only one instance of the purchased PBCD, whether it is used on a physical or virtual machine, may be used at one time.

This version of the Portlock Boot CD is meant to be used on NetWare and Windows systems only. Use of this PBCD on other operating systems will not be supported.

Editing

Portlock recommends that customers build their production license into the Portlock Boot CD for NetWare by editing the ISO image. Unlike the Portlock Boot CD for NetWare (Linux), this version does not create a virtual file system. The disc image is loaded as a read-only file system. If you do not build your production license into the ISO image, you must have a floppy disk drive attached to the server. The ISO is small enough that you may use the evaluation version of Portlock Storage Manager to replace the evaluation license with your production license. To insert your production license into the Portlock Boot CD for NetWare, perform the following procedure:

1. Download and install an ISO editor such as UltraISO or WinISO
2. Open the Portlock Boot CD for NetWare ISO image with your ISO editor
3. Open the **/stormgr** folder
4. Locate and delete the file **stormgr.lic**
5. Copy your production license into the **/stormgr** folder
6. Save the ISO image file
7. Burn the ISO image to CD

Using the Portlock Boot CD

If your server does not have at least 256 MB of RAM installed, the Portlock Boot CD for NetWare will not load. Once you have burned the ISO image to a CD, place the CD in the CD drive of the desired server and boot the system. Change the boot configuration to boot from CD as the first boot option. The option to "Press any key to boot from CD" has been removed. The Portlock Boot CD for NetWare will automatically boot, so once you have restored your system, you must either change the boot order of your BIOS, or remove the CD from the system. After the Portlock Boot CD for NetWare loads the appropriate drivers for your server's storage and network controllers, Portlock Storage Manager will automatically start. In the event that you exit the initial execution of Portlock Storage Manager, you may restart it by typing "stormgr" in the X:\stormgr directory.

The Portlock Boot CD for NetWare provides a large amount of flexibility in regards to creating or restoring images. TCP/IP is enabled during the boot sequence via DHCP, so you may send or receive images to or from a FTP server, retrieve images from a web server or send and receive images to or from a Windows workstation. If your network does not implement a DHCP server, please refer to **Configuring a Static IP Address** later in this document. You may also implement external storage devices for your imaging and restoring needs. The following section explains how to mount, format and access a USB device.

Implementing a USB Drive

To use a USB or FireWire device with the Portlock Boot CD, the device must be attached to the server before the boot sequence begins. This version of the PBCD does not support hotplug devices. This will be supported in a later PBCD release. If you remove the USB device from the system, the server must be rebooted after the device is reattached in order for the device to be recognized. Since the PBCD is Windows-based, restoring to an NTFS partition is now possible. Your USB drive must be formatted with FAT32 or NTFS to be recognized as a readable/writable file system.

A USB- or FireWire-attached external storage device must have a drive letter in order to be referenced when using the PBCD. To assign and/or identify a device's drive letter, type ***diskpart*** at the command prompt.

This will start the diskpart utility included with the PBCD. To locate your FAT32 or NTFS volumes, type ***list volume*** at the command prompt.

From the list provided, you may identify the correct drive letter by the sizes of the partitions. If you are unsure which partition is your intended USB device, you may exit diskpart by typing ***exit*** and navigating to each of the disks. Issue the ***D:*** command to display the contents of your disks.

"D" is the letter that is assigned to the partition by the PBCD. After issuing this command, your command prompt should change to D:\>, or to the drive letter that you entered.

The ***dir*** command displays the contents of your current directory. You may also specify a subdirectory to display by issuing the command ***dir <subdir>***, where "subdir" is a known subdirectory on that partition. With these two commands, you can easily identify the destination of an image. Once you have found where your image resides or will reside, you may return to the PBCD by issuing the ***X:*** command.

Configuring a Static IP Address

With the initial release of the PBCD, the only way to configure a static IP address was to build the address into the ISO image. It is now possible to set a static IP address by exiting Portlock Storage Manager and issuing the ***set_ip*** command.

You can use the dialog boxes to set static IP addresses for any and all NIC controllers on your system.

Known Issues

1. The PBCD must boot in Legacy mode on EFI systems. The dual-boot catalog tools will be added to the Windows Vista version of the PBCD.
2. This version of the PBCD does not support hotplug devices. All USB devices must be attached at or before boot time in order to be recognized.
3. This version of WinPE does not support writeable ramdisks. Any files created must be saved to a hard disk, USB drive or floppy diskette.
4. Storage and NIC drivers may not be inserted into the PBCD at runtime. These drivers must be added to the build environment, and a new ISO must be created.
5. Mounting NetWare Traditional and NSS file systems with the PBCD is not supported.

Tools Included

In addition to Portlock Storage Manager, there are some standard and nonstandard tools that are built into the PBCD. Here is a list of the tools we have included thus far:

Portlock Windows Send and Receive tools (send.exe and recv.exe) – These tools are generally installed on a windows workstation in order to send or receive images with Portlock Storage Manager.

Diskpart – A tool for managing drives, partitions and volumes.

PDFReader – a tool for viewing PDF files while running the Portlock Boot CD.

Portlock Storage Manager for NetWare – Storage Manager may be installed to a NetWare system from the PBCD.

DOS Tools – These include common MS DOS tools; dir, edit, format, etc…

Notepad – GUI -based text editor.

Regedit – Windows registry manipulation tool.

Supported Devices

For a list of storage and network devices that are currently supported on this PBCD, please refer to the **devices.txt** file located at the root of the PBCD. If your storage or network controller is not included in **devices.txt**, or the PBCD does not recognize your controller due to a deprecated driver, please email a description of your controller including the make and model to **support@portlock.com**. Your request will be answered and resolved in a timely fashion.

B. Portlock Boot CD (Linux)

Terms of Use

This version of the PBCD is free to download and use. Customers may boot an unlimited number of systems with this PBCD, providing they have the appropriate licensing for the software provided with the PBCD.

This version of the PBCD is only supported when used with physical Linux systems. Portlock Software will not support this version of the PBCD being used with NetWare, Windows or any other operating system other than Linux. Use of this version of the PBCD in virtual environments is also unsupported. For virtual machine manipulation, please use the PBCD NetWare/Windows version.

Editing

Unlike the NetWare/Windows PBCD, this version offers more flexibility with the read-write file system created in RAM. Users who are Linux savvy may login to the PBCD console and copy their license from any number of locations, including (but not limited to) USB drives, hard drives and remote network locations. Although you may "install" your license in the PBCD at boot time, it is only stored in the RAM file system. This means that once the machine is rebooted, RAM is cleared and all changes made are not saved. If you do not want to load your production license every time you use the PBCD, you may build your production license into the ISO image. To insert your production license into the Portlock Boot CD, download the ISO image and open the file with an ISO editor such as UltraISO. The PBCD ISO image is small enough that you may use the evaluation version of the software to replace the evaluation license with your production license. Once you have an ISO editor, perform the following procedure:

1. Open the ISO image with the ISO editor.
2. Open the folder located in the /products directory containing the software evaluation license.
3. Locate and delete the evaluation .lic file.
4. Copy your production license into the current folder.
5. Save the ISO image file.
6. Burn the ISO image to CD.

Using the Portlock Boot CD

You must have at least 256 MB of RAM in your system. If you server does not have an adequate amount of RAM installed, the Portlock Boot CD will not load. Once you have burned the ISO image to a CD, place the CD in the CD drive of the desired server and boot the system. Make sure to change the boot configuration to boot from CD as the first boot option. From the splash screen a boot prompt is displayed. Pressing **F2** will display a list of boot options that may be added to customize the way the PBCD boots. Depending on the the server's configuration, certain boot options may be turned on or off at the boot prompt.

For a complete list of boot command-line options, please refer to **cheatcodes.txt**, located at the root of the PBCD.

As with the PBCD NetWare/Windows version, an IP address is assigned to each Ethernet controller that resides on the server via DHCP. If your network does not implement a DHCP server, please refer to the "Configuring a Static IP Address" section for details on configuring the PBCD with a static IP address. If a server contains a newer Ethernet controller, it may not be supported, in which case an IP address cannot be assigned. You may also implement external storage devices for your imaging and restoring needs. To send or receive image files to a USB drive, please refer to the following section.

Implementing a USB Drive

This version of the PBCD does support hotplug devices such as USB and FireWire. Hotplug devices may be recognized by being attached to a running machine at any point in time. The only exception to this rule is if hotplug detection is disabled with the boot command-line option ***nohotplug***. Supported file systems include all Linux file systems (ext2, ext3, Reiser), as well as FAT32.

All storage devices intended to be used with this PBCD need to be mounted. Portlock does not mount partitions with the PBCD. All supported file-system mounting must be performed by the user. The following commands explain how to identify and mount a storage device with the PBCD Linux version. Once the user has logged into Linux, the device path of the desired storage controller needs to be determined. Issuing the ***fdisk -1*** command will provide a list of all devices attached to supported storage controllers.

Users may identify the storage device they wish to use by its file system type and size in megabytes. In Linux, devices are assigned a name only containing letters. The partitions associated with the device are identified by the device name ending with a number. For example, ***/dev/sda*** is a disk drive and ***/dev/sda1*** is partition one on the disk. Users will mount the partition, as attempting to mount the disk will yield an error. Before the mount command may be issued, a mount point must be created by issuing the ***mkdir /mnt/my_device_name*** command.

Mount points may be created anywhere; they are not limited to the /mnt directory. After the mount point is created, the device may be mounted for reading and writing by issuing the following command: ***mount /dev/sda1 /mnt/my_device_name***

Again, notice that the device partition is mounted, not the whole device. If the mount command returned without error, the partition contents should be accessible from the mount point. To verify the mount was successful, issue the command for a directory listing.

Once the user verifies the device is mounted, they may use that device by referencing the mount point. The storage device needs to be dismounted prior to detachment to prevent data loss. To dismount the device you may issue the command or the command.

After the command has returned to the prompt, the hotplug device may be safely removed from the server.

Configuring a Static IP Address

If your network does not use a DHCP server, or the PBCD was unable to obtain a dynamic IP address, then you must set a static IP address. There are a number of tools within the PBCD that may be used to set the IP address. The easiest way to set an IP address is by choosing "Configure TCP/IP" from the PBCD main menu. From there, choose "Configure Manually," enter the device name of the Ethernet controller (eth0 is the first device, with each additional device receiving an incremented number – eth1, eth2, etc…). After the user chooses the device to configure, they may set the IP address, subnet mask, gateway, auto negotiation, duplex and speed. Once the desired values are set, the user may exit and continue using the PBCD. If the user continues to have TCP/IP problems, they may refer to the document **http://www.portlock.com/products /storagemanager/boot_cd/linux/Manually_Setting_up_TCP-IP.pdf** for a more in-depth, manual TCP/IP configuration.

Known Issues

1. Mounting NetWare traditional file systems is not supported.
2. Mounting NetWare NSS file systems is not supported.
3. EFI systems must be booted in legacy mode.
4. Newer storage and network controllers may not be supported due to lack of source code availability.

Tools Included

In addition to Portlock Storage Manager, there are some standard and nonstandard tools that are built into the Portlock Boot CD. Here is a list of the tools we have included thus far:**Linux tools** – many of the command line tools that accompany common Linux distributions (ipconfig, grep, sed, ssh, etc…)

Portlock Storage Manager – the Linux version of Storage Manager

KDE Desktop – full X11 GUI desktop which contains various desktop tools (PDF viewer, GUI text editor, web browser, and many more.)

Supported Devices

For a list of storage and network devices that are currently supported on this PBCD, please refer to the **devices.txt** file located at the root of the PBCD. If your storage or network controller is not included in **devices.txt**, or the PBCD does not recognize your controller due to a deprecated driver, please email a description of your controller including the make and model to **support@portlock.com**. Your request will be answered and resolved in a timely fashion.

Portlock software uses a custom kernel for this PBCD, so source code for a requested driver may not be available immediately. If possible, please provide a download location for your driver's source code. Prebuilt SuSE, RedHat, or other distributions of the driver are not compatible, nor are they usable for the PBCD. Any such links will be ignored.

C. Technical Support

Portlock provides multiple levels of technical support.

Level One: Portlock Support Forums. The Portlock Support Forums provide free support where customers may post any questions, comments or concerns. Portlock Technicians will monitor and provide information regarding forum issues in addition to the solutions provided by experienced customers.

Level Two: Technical Support via Email. While this option is also free, support is limited to existing customers and selective pre-sales evaluation questions. Questions from expired customers will not be answered until the customer has renewed their software license(s).

Level Three: Incident Assistance via Telephone. This support may be purchased for a fee in units of Incident Packs. Customers who have not purchased a tech support incident may do so over the phone at the start of the call. If customers neither have an existing incident purchase, nor want to purchase, they will be directed to the first two forms of technical support.

Portlock also offers Customer Assistance Packs for an additional fee. Customer Assistance Packs cannot be used as technical support and vice-versa. Our Customer Assistance instances involve helping the customer complete a task with one our software products. If an error is encountered during the process, it will be taken care of by the technician, but Customer Assistance instances will not be accepted if the call origin is error-based.

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